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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 30

Application Number: 09/291,983
Filing Date: April 15, 1999
Appellant(s): Martin

Bryan P. Collins
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed September 25, 2002.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is no longer correct. Upon further consideration, issue (2) directed to the obviousness-type double patenting rejection of claims 1, 3-9, 16 and 23 has been withdrawn since the two-way obviousness test, which is required (see MPEP 1504.06, section II), is not met by the applied references.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with because appellant provides the same reasons for patentability for all of the claims (i.e., in Argument sections B and C) and thus does not establish reasons for separate patentability of the recited claim groups.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

679,653	WELLS	7-1901
3,329,186	DAVID	7-1967

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Prior Art Rejection Under 35 USC 103(a)

Claims 1, 3-9, 16 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over David, pn 3,329,186, in view of Wells, pn 679,653 (hereafter Wells '653).

David discloses a hacksaw with almost every structural limitation of the claimed invention including a hacksaw frame assembly including a rigid I-beam member (e.g., 22) wit upper and lower end caps and a generally vertical web member extending therebetween; a first blade mounting structure (e.g., 37) provided on forward end portion of the frame member; a releasably blade tensioning device (e.g., 50); and a manually engageable handle (e.g., 24) connected to the frame member.

David further lacks the frame member having an arcuate portion extending substantially the entire length between the forward end portion and a maximum height portion. Wells '653 discloses a frame member with such an arcuate portion and teaches that the curved characteristic and the tubular characteristic combined provide a desired degree of elasticity along with the requisite strength to strain the saw blade for cutting. It is noted that the I-beam-shaped frame member of David is considered to be a strengthening characteristic of the frame member of David that is equivalent to the tubular characteristic of Wells. Further, the Examiner takes Official notice that it is old and well known in the art, particularly the mechanical arts, that corners or sharp bends or the like create stress risers wherein stress is concentrated in a relatively small area of a component which may lead to premature failure of the component in that area. It is further known that to alleviate this problem, the material in that area must be either "overdesigned" (i.e., designed with stronger material or enough additional material to provide the needed extra strength and endurance for a sufficiently long life for the component) or designed more "efficiently" without such corners or sharp curves to eliminate the stress concentration areas which usually provides benefits such as requiring less material resulting in a lighter weight component. Therefore, it would have been obvious to one having ordinary skill in the art to provide the frame member of David with the claimed arcuate portion for providing an efficient design along with the other well known benefits described above as well as those taught by Wells.

Further, the limitations of claims 3-5 and 16 are met by the application of the teachings of Wells to the frame member of David.

Further, the specifics of the arcuate portion as defined in the dependent claims, specifically the specific measurements of claims 6-9, would be the mere discovery of the optimum or workable ranges within the general conditions of the prior art by routine experimentation and therefore obvious to one having ordinary skill in the art.

(11) Response to Argument

It is respectfully submitted that contrary to appellant's argument, the Examiner has sufficiently established a prima facie case of obviousness. It is emphasized that the saw art, including the hack saw art, is very old and well established, with a myriad of different variations of saw configurations. The Examiner chose David's patent as the base reference because, in his view, it was the best base reference and required the least amount of modification. However, there are many other combinations of prior art saws that could have been applied that would have fairly taught or suggested the claimed invention. While it may not be proper to consider these other references as part of the rejection, they do provide additional bases for establishing the level of ordinary skill in the art as well as what is known in the art. Further, the Examiner would like to add that a person of ordinary skill in the saw art is believed to be a technically skilled individual, most likely an engineer, with training in strength of materials including material stress analysis training.

David discloses a saw or hacksaw with one type of bow frame 22. The bow frame is made of an I-beam configuration for enhanced strength. The saw of David meets almost every structural limitation of the claimed invention and only lacks specific details of the frame configuration; namely, a frame with an arcuate portion that extends substantially the entire length between a forward end portion and a maximum height portion.

It would be clear to one having ordinary skill in the art, looking at David's saw, that the weak point in the frame with respect to fatigue is at the curved portions, particularly the narrow front curved portion. Basic training in stress analysis teaches that corners or sharp curves in a structural component causes stress risers which may lead to premature failure of a structural component due to fatigue. It is noted that evidence to support the relationship between sharp corners in structural components and fatigue is found in engineering textbooks and manuals (if it is considered necessary to provide such evidence, such evidence will be provided; however, these principles are basic fundamentals of engineering and such evidence to this point was not considered to be necessary). As stated in the prior art rejection, to alleviate this problem, the material in that area must be either "overdesigned" (i.e., designed with stronger material or enough additional material to provide the needed extra strength and endurance for a sufficiently long life for the component) or designed more "efficiently" without such corners or sharp curves to eliminate the stress concentration areas which usually provides benefits such as requiring less material resulting in a lighter weight component. Thus, to provide a more efficient, lighter weight design, one of ordinary skill in the art would look to eliminate

the corners or sharp curves. Wells is one among many patents to saws, particularly hack saws, that teaches how to eliminate such corners or sharp curves. Specifically, Wells teaches to provide a smooth arcuately curved frame on which the saw blade is supported. While it is noted that the frame of Wells is tubular, one having ordinary skill in the art would know that tubular structures and I-beam structures are known equivalents and are but two of a number of various types of known support structural components. In fact, tubular frame structures and I-beam frame structures are virtually interchangeable in many uses across a wide range of different arts, specifically as force-bearing components of frames or support structures in arts where lightweight, high strength components are essential. The following patents provide evidence of the known equivalence and interchangeability of tubular and I-beam structures:

Patent No.	Inventor	reference location
3,610,168	Macomber	column 4, lines 15-21
3,658,200	Chaplinski	column 1, lines 70-73
3,663,040	Weaver et al.	column 7, lines 47-51
3,680,840	Pech	column 2, lines 39-42
3,751,927	Perot, Jr.	column 7, lines 31-35
4,601,226	McClintock	column 3, lines 53-57
5,836,365	Derecktor	col. 4, line 64 - col. 5, line 6
6,088,981	Edwards	col. 15, line 63 - col. 16, line 1

Therefore, it is respectfully submitted that the three basic criteria for establishing a prima facie case of obviousness have been met. Specifically, the suggestion or motivation is to design a more efficient saw frame configuration while minimizing the possibility structural fatigue; the reasonable expectation of success is that such modifications are adopted in numerous structural designs, and more particularly, have been adopted in saw frames as evidenced by the prior art of record including Wells; and the prior art must teach or suggest all of the claim limitations which is clearly met and has been described. Further, it is emphasized that while it has been held to be impermissible to "pick and choose from any one reference," it is what the prior art teaches as a whole that must be considered.

Appellant argues that Wells teaches away from the claimed invention because the essence of the improvement therein is the curved characteristic and the tubular characteristic. The Examiner respectfully disagrees, particularly in view of the fact that tubular structures and I-beam structures are equivalents and are virtually interchangeable. In view of their equivalence, one of ordinary skill in the art is likely to apply similar teachings to both types of structures and would expect to gain substantially the same result by doing so.

In the fifth paragraph on page 7 of the Brief, appellant argues that the Rule 132 Declaration established far superior performance of a hacksaw constructed in accordance with the claimed invention. The Examiner respectfully submits that, although the performance was considered to be superior, it did not appear that the results were considered to be unexpected.

For at least the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Clark F. Dexter
Primary Examiner
Art Unit 3724

cfd
December 16, 2002

Conferee: Allan Shoap

Conferee: Kenneth Peterson

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